Neonatal diarrhoea in pigs

Jensen, Tim Kåre

Publication date:
2010

Document Version
Publisher's PDF, also known as Version of record

Veterinærinstituttet

Danmarks Tekniske Universitet

DTU

Neonatal diarrhoea in pigs

Tim K. Jensen

The 34th NSVP Meeting Oslo 2010

VIDENCENTER
FOR SVINEPRODUKTION

VSP

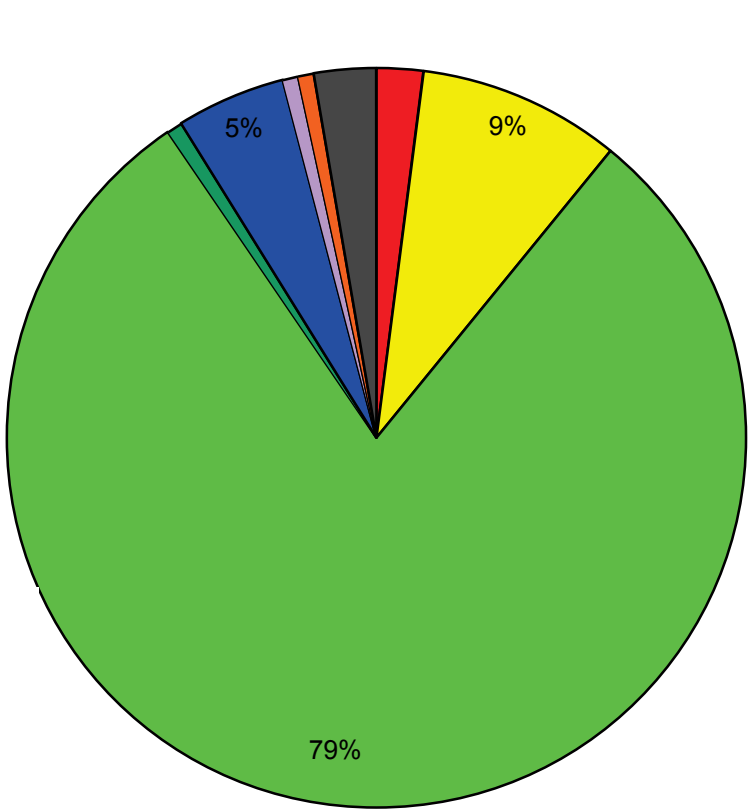
LANDBRUG FØDEVARER

Neonatal diarrhoea in pigs
Laboratory findings

- Agents found at Danish laboratories
- Is there a change over time?
- New Neonatal Porcine Diarrhoea

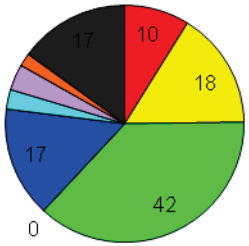
Diagnoses, pigs 0 - 5 days
2008, 147 submissions

Laboratory for Swine Diseases Kjellerup

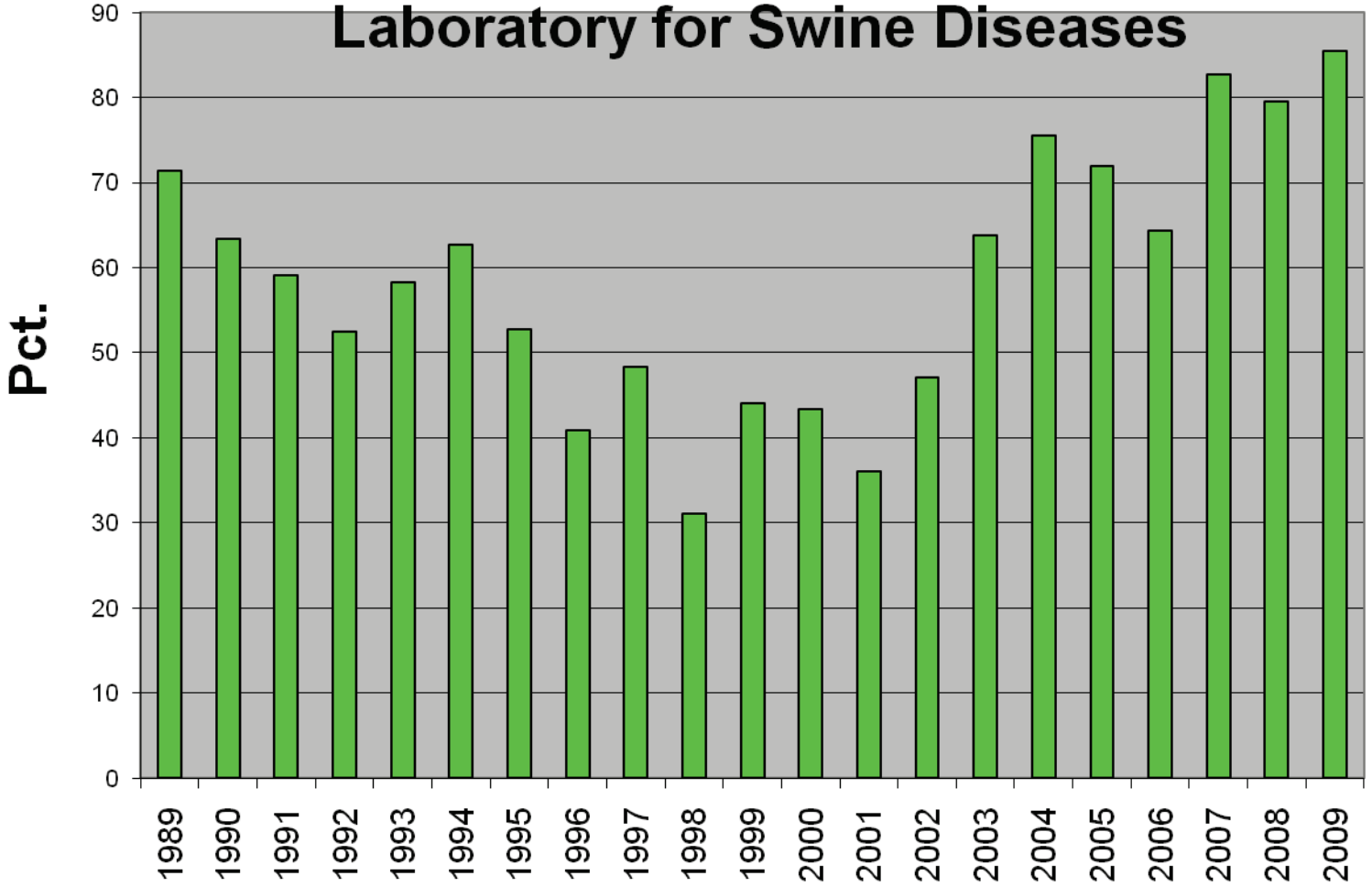


- Trauma
- Starvation
- Enteritis
- Constipation
- Septicemia
- Pneumonia
- Dermatitis
- Others

1998



Submissions with enteritis, in percent of submissions
Pigs 1 - 5 days, 1989 - 2009
Laboratory for Swine Diseases



Neonathal diarrhoea in pigs

well-known causes:

- Bacteria
- Virus
- Management
  - Starvation
  - Low temperature
  - Colostrum deficiency
  - Poor hygiene

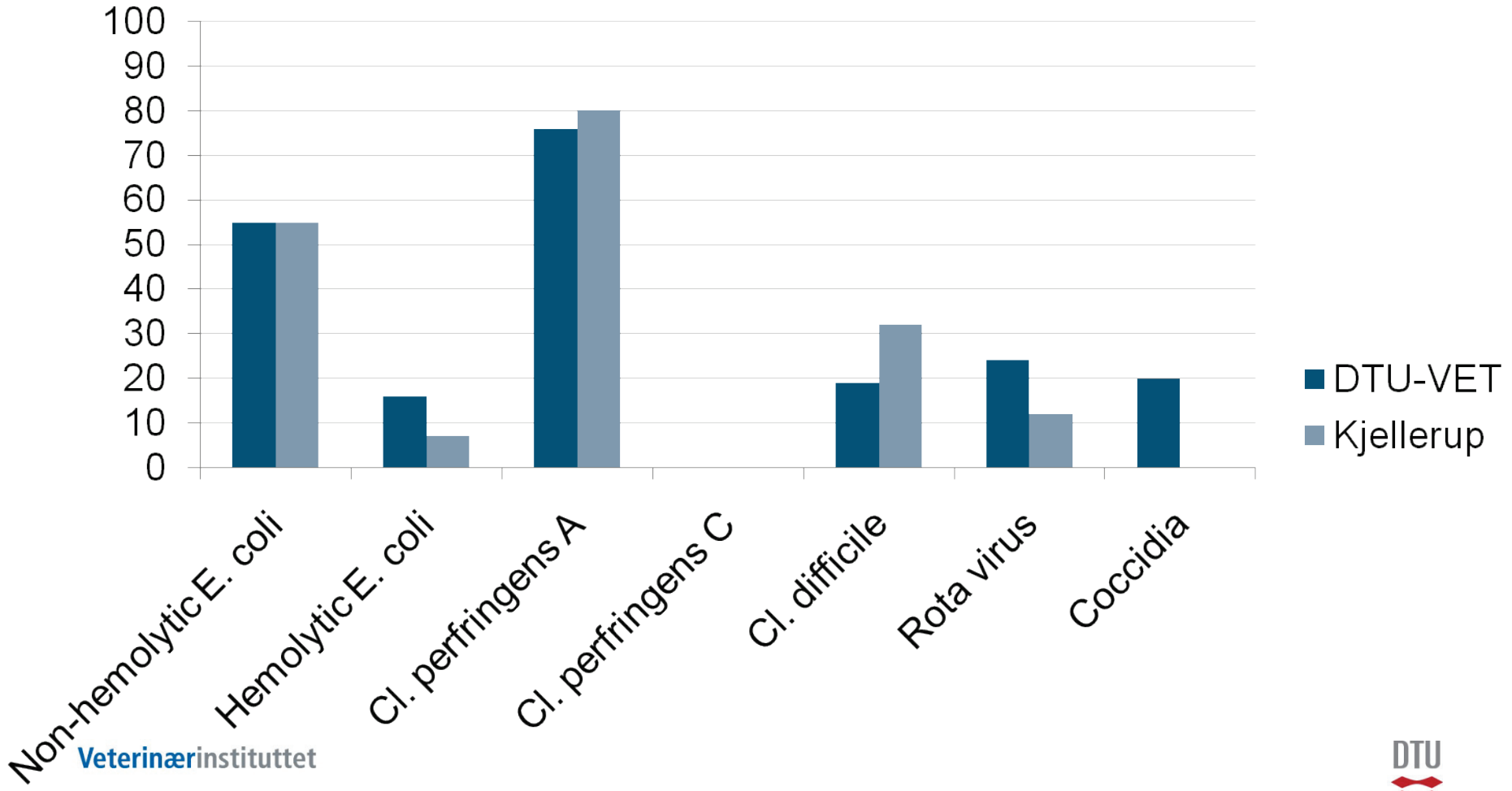
Neonathal diarrhoea in pigs

pathogens:

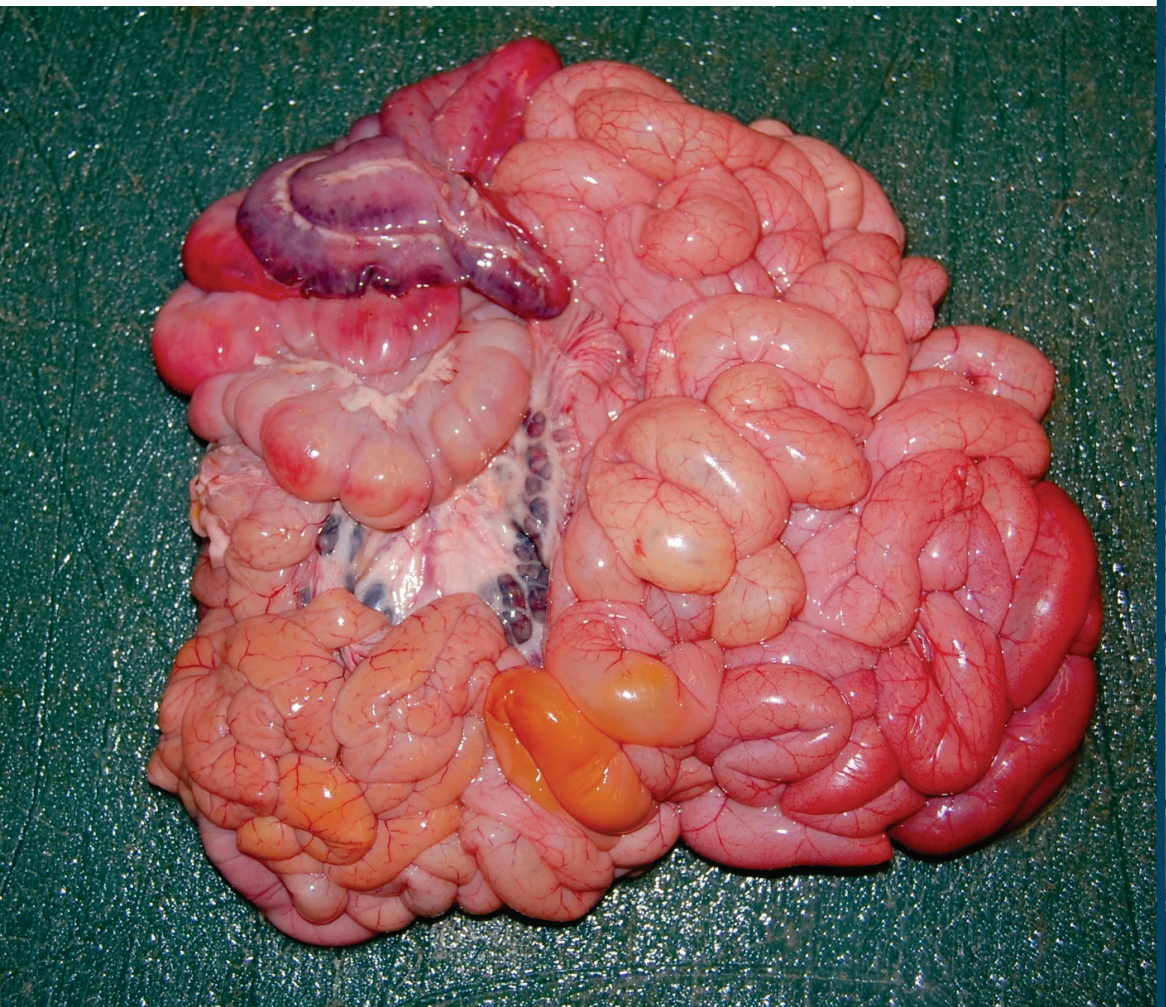
- E. coli
  - Hemolytic E. coli, ETEC
  - Non-hemolytic E. coli, ETEC
- Cl. perfringens, type C
- Cl. perfringens, type A
- Cl. difficile
- Rotavirus

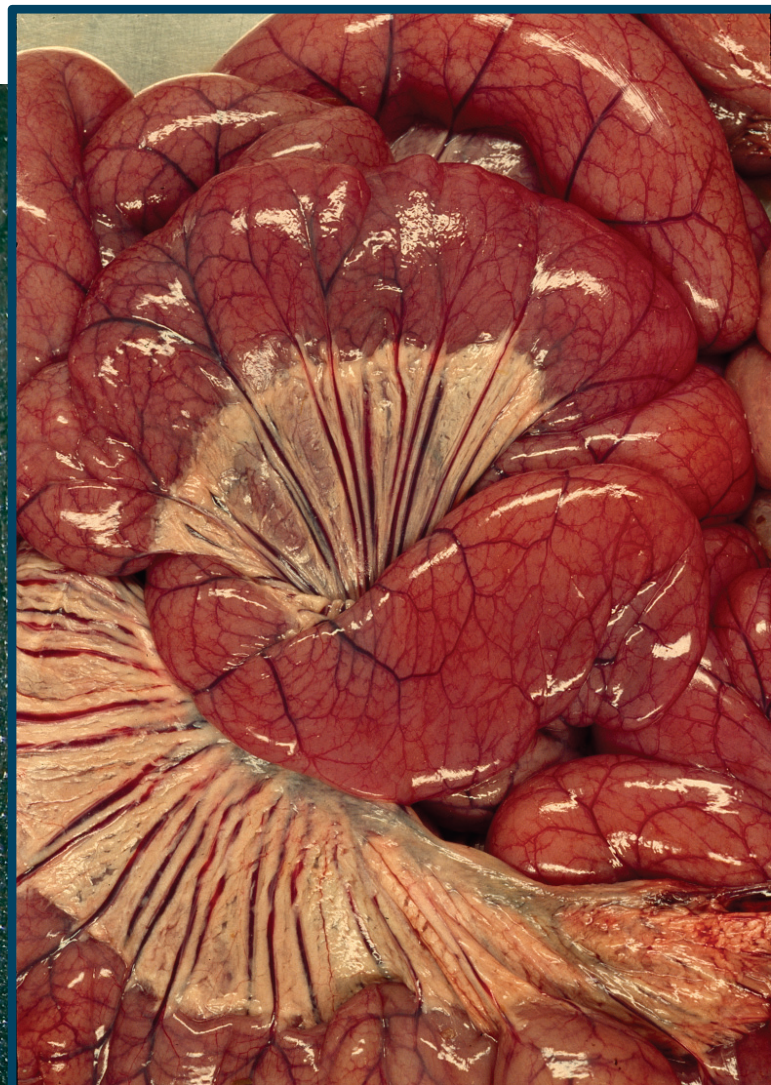
Positive analyses in pigs 2008

DTU-VET 0 – 4 weeks
Kjellerup 0 – 5 days

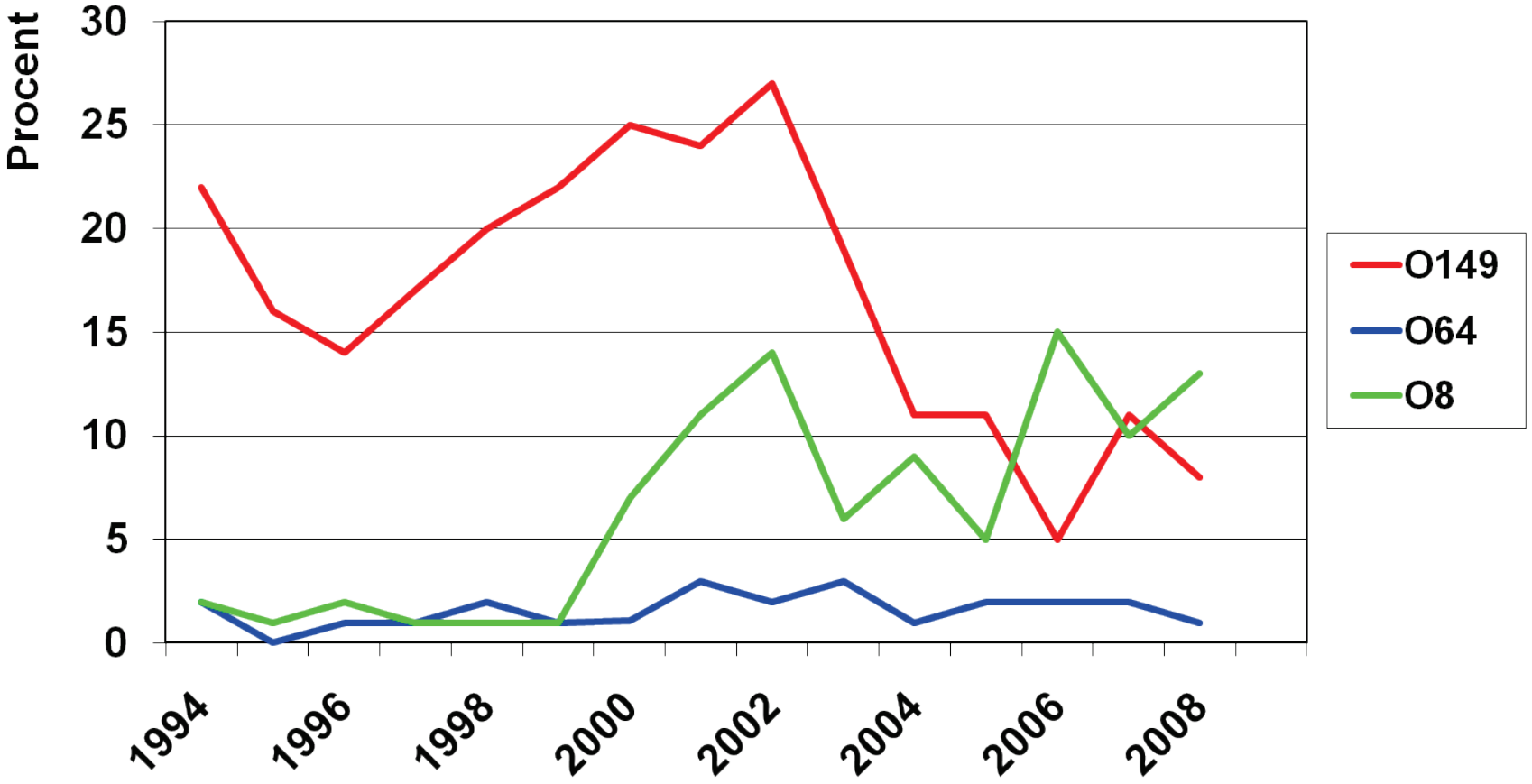


Hemolytic E.coli, O149





Isolation of *E. coli* types, 0-4 weeks,
compared to submissions with the anamnesis diarrhoea,
SVS/DFVF/DTU-Vet



Virulens factor F4, genotype distribution in young breeding animals

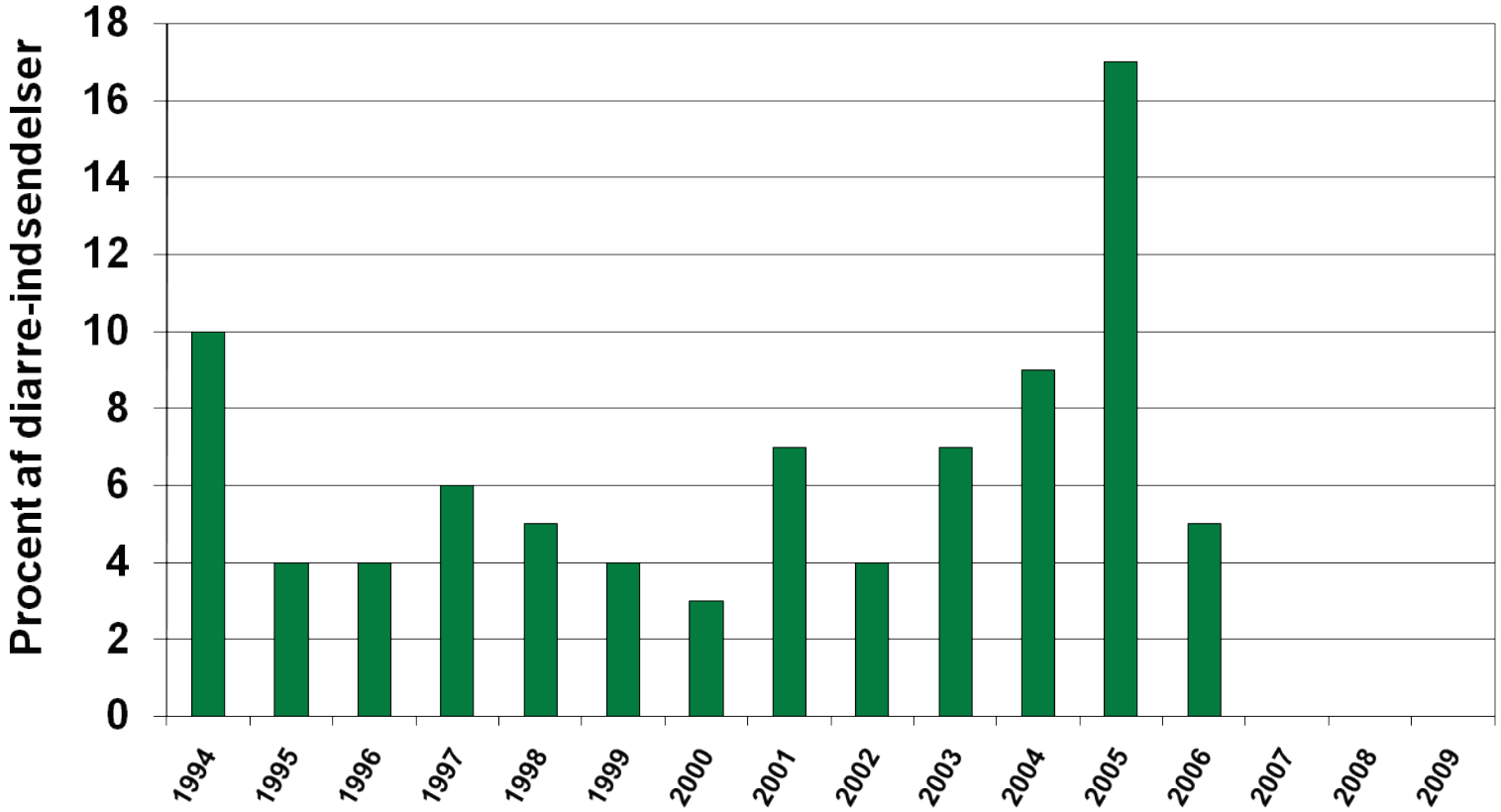
Race	2003, Sensitive	2008, Sensitive
DD	12 %	2 %
LL	99 %	19 %
YY	81 %	4 %

Non-hemolytic E. coli?, non ETEC

Necrotizing enteritis - Detection of Cl. perfringens type C

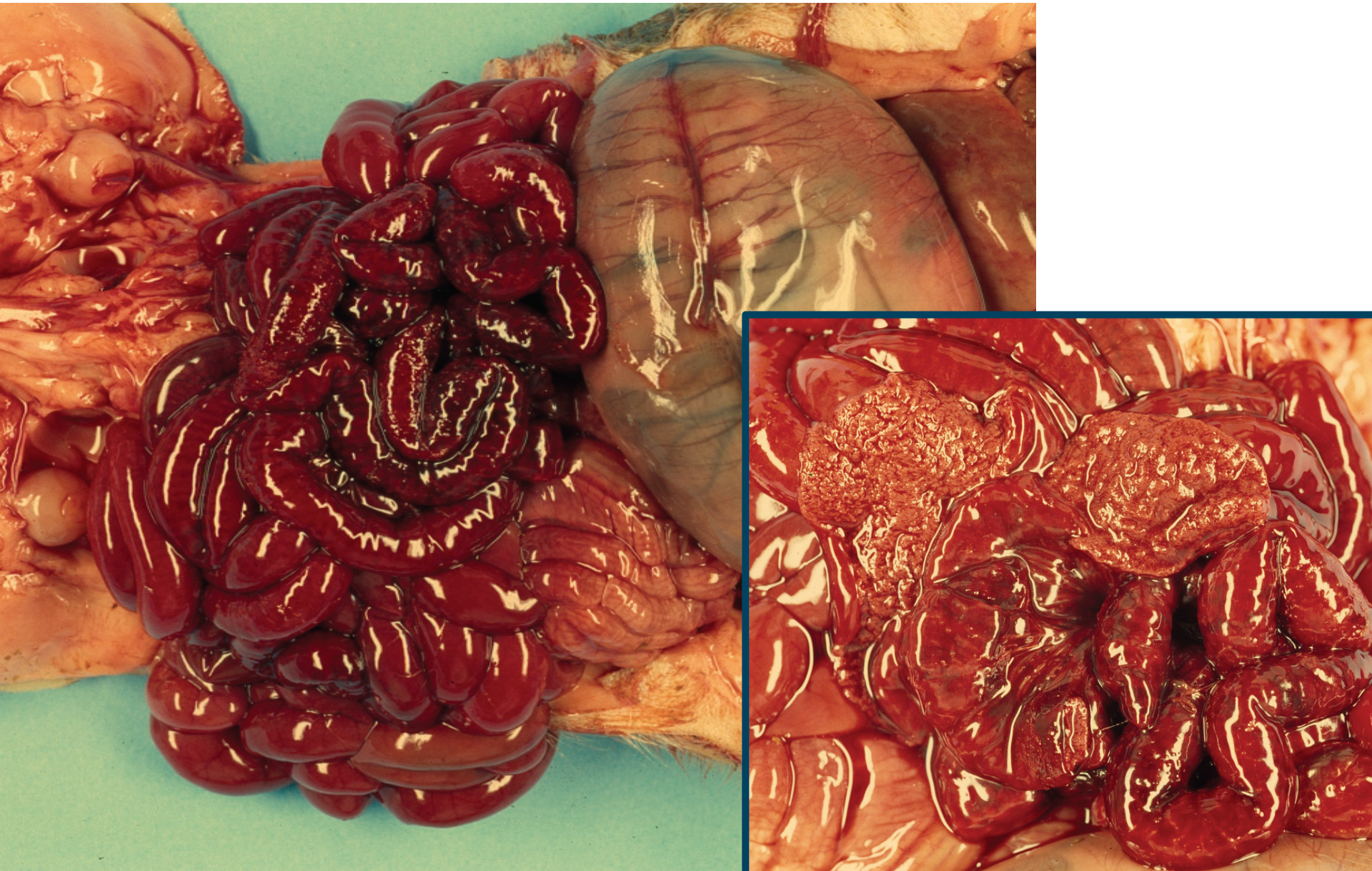
Pigs 0 - 4 weeks, DTU-VET

Procent of submissions with anamnesis diarrhoea

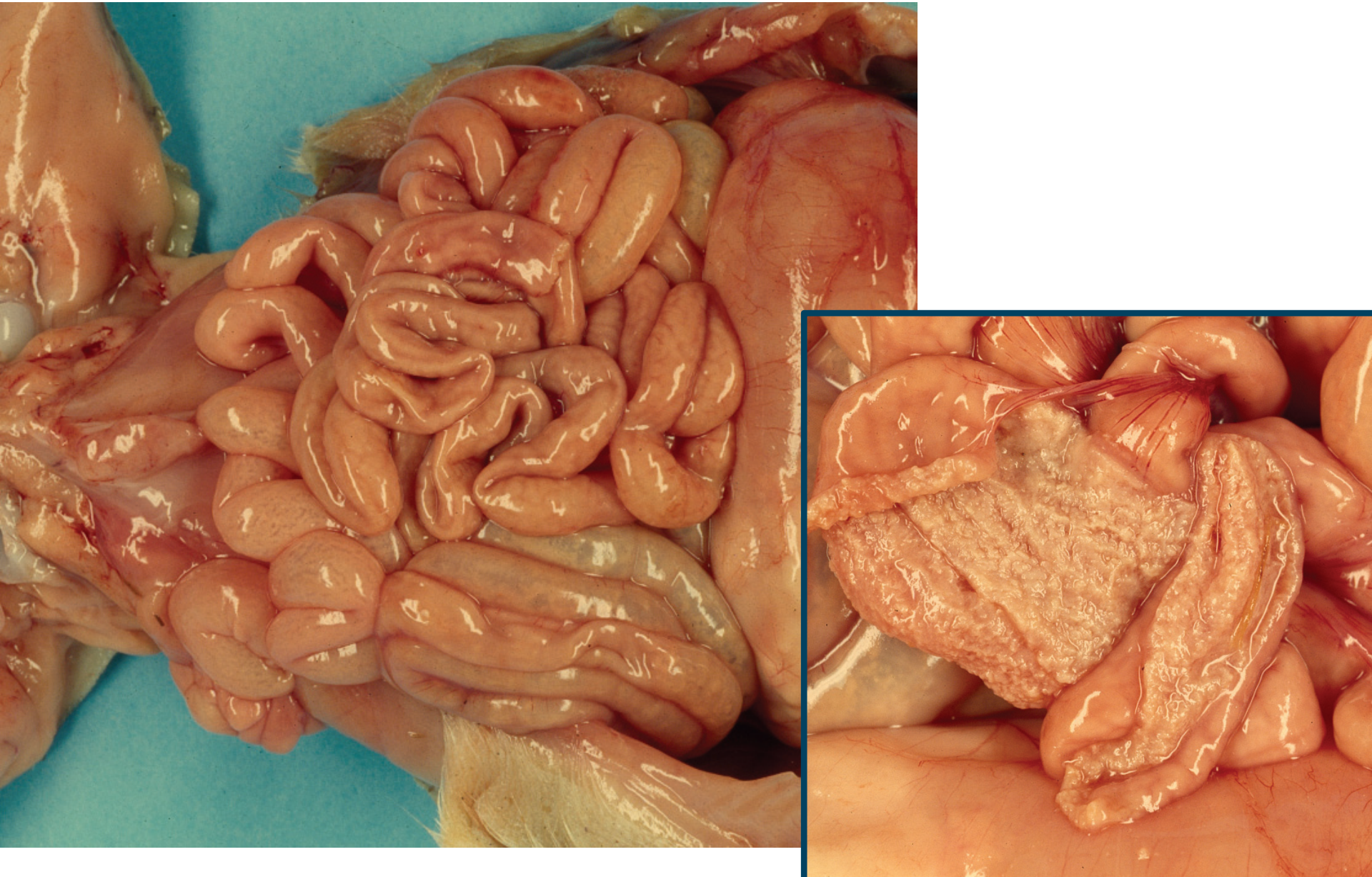


Cl. perfringens, type C necrotizing enteritis

Cl. perfringens, type C acute necrotizing enteritis

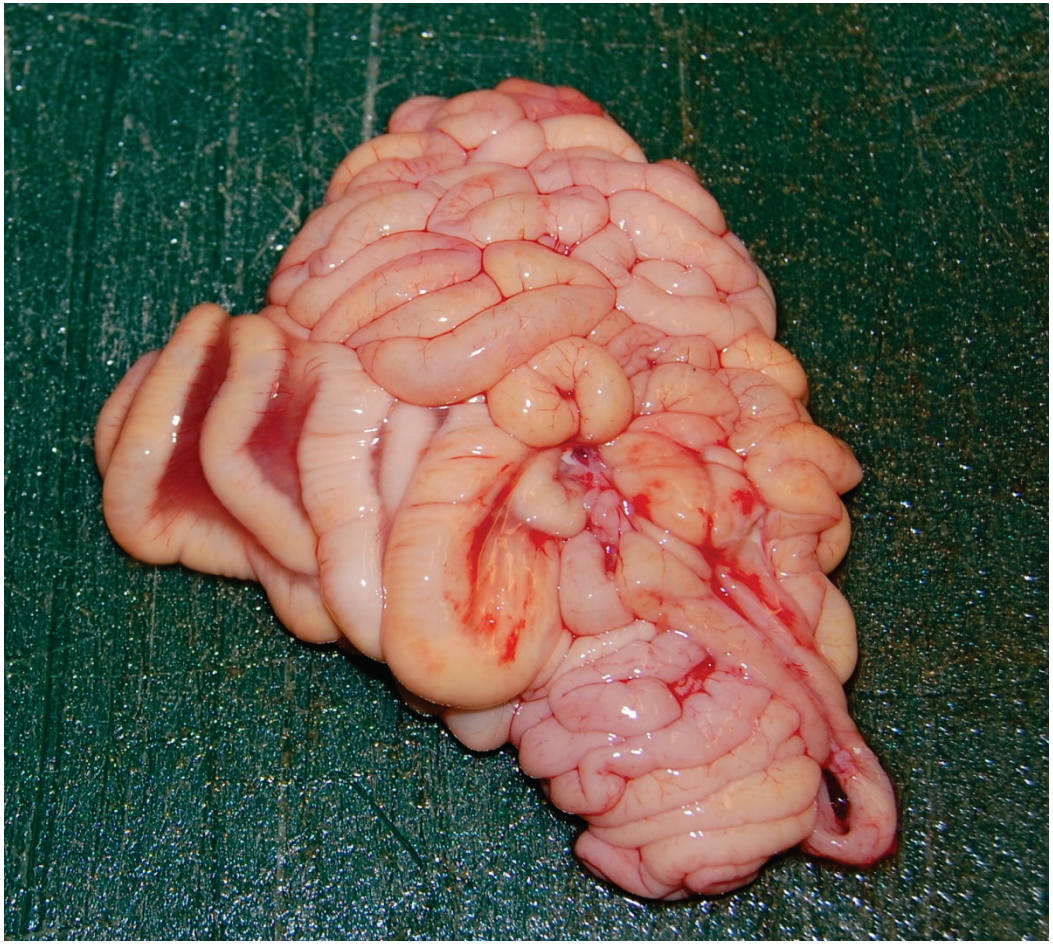


Cl. perfringens, type C mild necrotizing enteritis

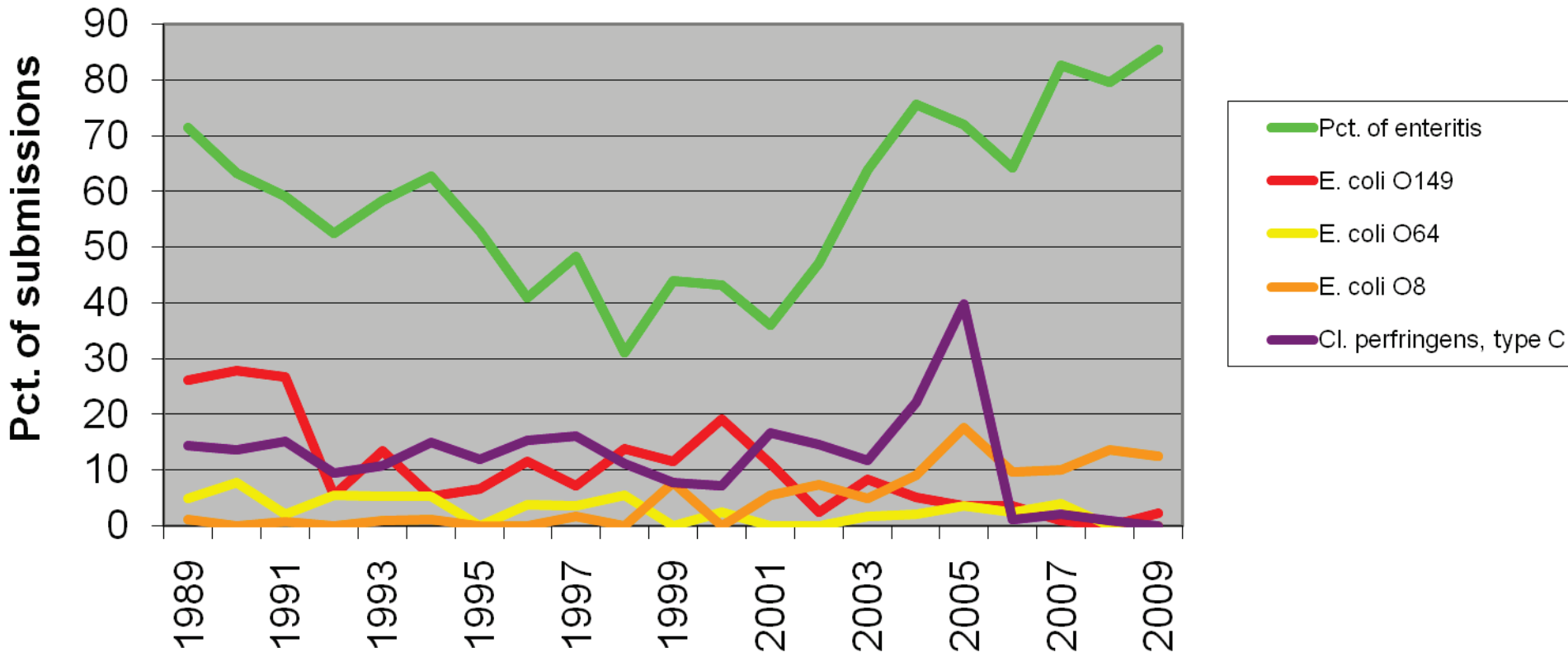


Cl. perfringens, type A?

Cl. difficile ?



New Neonatal Porcine Diarrhoea (NNPD)



New Neonatal Porcine Diarrhoea?

- New pathogens
  - Bacteria (Cl. Perfringens type A?)
  - Virus
- Small / immature piglets
  - Low birthweight
  - Immature
  - Insufficient colostrum supply
- Nutritionary, toxins in the sow feed
- Antibiotic treatment

New project

Titel:

- **New Neonatal Porcine Diarrhoea**
  - Aetiology and diagnosis
  - Treament
  - Prevention

Period:

- 01.01.2010 – 31.12.2013

Collaboration

- DTU-VET and VSP (Danish Pig Industry)

Economi:

- 10.5 mill. Dk kr.

New Neonatal Porcine Diarrhoea Hypotheses II

- ✓ NNPD is a syndrome, different from classic E. coli diarrhoea, necrotizing enteritis (Cl. perfringens type C) and rotavirus
- ✓ NNPD leads to changes in the gut which are characteristic for the syndrome
- ✓ Infectious agents have a significant role in NNPDToxin production from Cl. perfringens type A and prevalens of Cl. difficile affects NNPD
- ✓ The establishment and composition of the intestinal microbiota of the newborn pig is important for the development of NNPD

New Neonatal Porcine Diarrhoea Hypotheses II

- ✓ Toxin production from Cl. perfringens type A and prevalence of Cl. difficile affects NNPD
- ✓ Therapy with antibiotics initiates NNPD by altering the intestinal flora
- ✓ Diagnosis of herd-specific causes is necessary for an appropriate intervention
- ✓ NNPD can be prevented by changes in management, stabilization of the intestinal microbiota or by vaccination against specific agents identified in the project.

New Neonatal Porcine Diarrhoea

- **New Neonatal Porcine Diarrhoea**
  - Ph.D. project in epidemiology
  - Ph.D. project in pathology and in situ detection
  - Ph.D. project in microbial ecology

- We look forward to present the results